


Management & Research Updates

Mule Deer and White-tailed Deer

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Andrew Norton, Senior Big Game Biologist

2021 April Commission Meeting

Outline

- ***Population Objectives***
- ***Biological Data***
  - *Herd composition*
  - *Harvest*
  - *Abundance surveys*
  - *Survival studies*
  - *Research*
- ***Population Modeling***
  - *Estimating populations*
  - *Projecting harvest and population trends*
  - *Evaluation of current deer proposals*

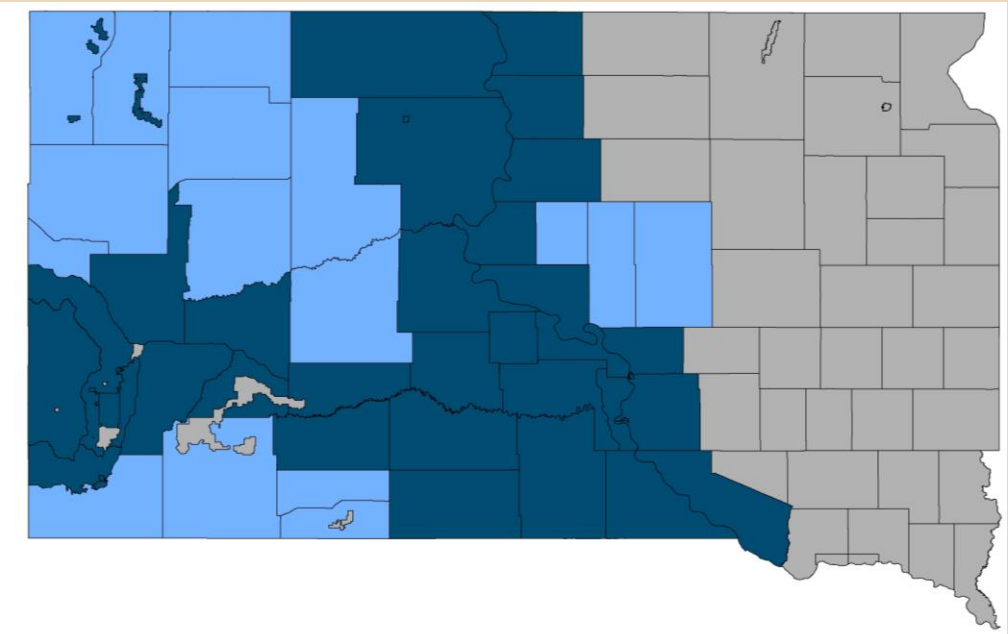
Population Objectives

1. Hunt Quality
   - License density thresholds
     - *Limited Access Areas (LAUs)*
   - Hunter success thresholds
     - *All firearm units and NWRs*

2. Population Abundance
   - Black Hills

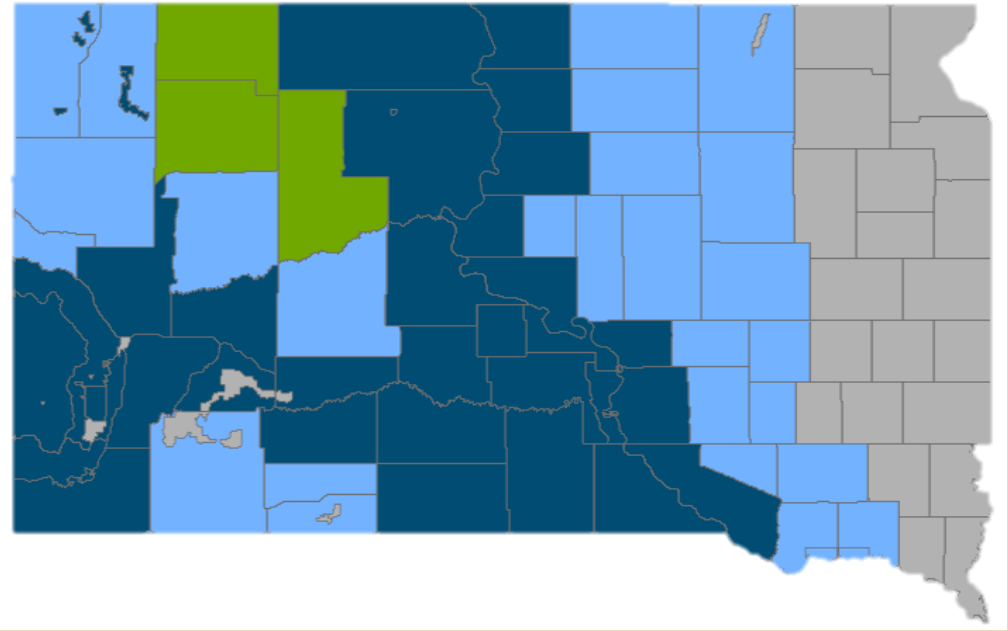
3. **Population Change**
   - Increase, decrease, maintain
   - Use biological data and population modeling
   - Social data

Mule Deer



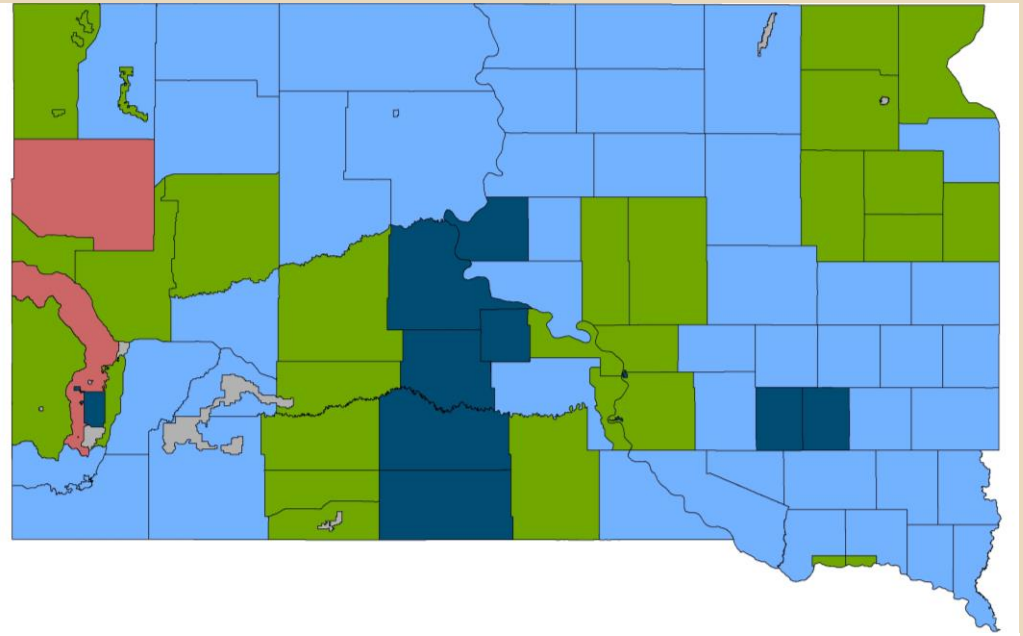
2019 - 2020

- Substantially Decrease
- Slightly Decrease
- Maintain Current Level
- Slightly Increase
- Substantially Increase



2021 – 2022

Whitetails



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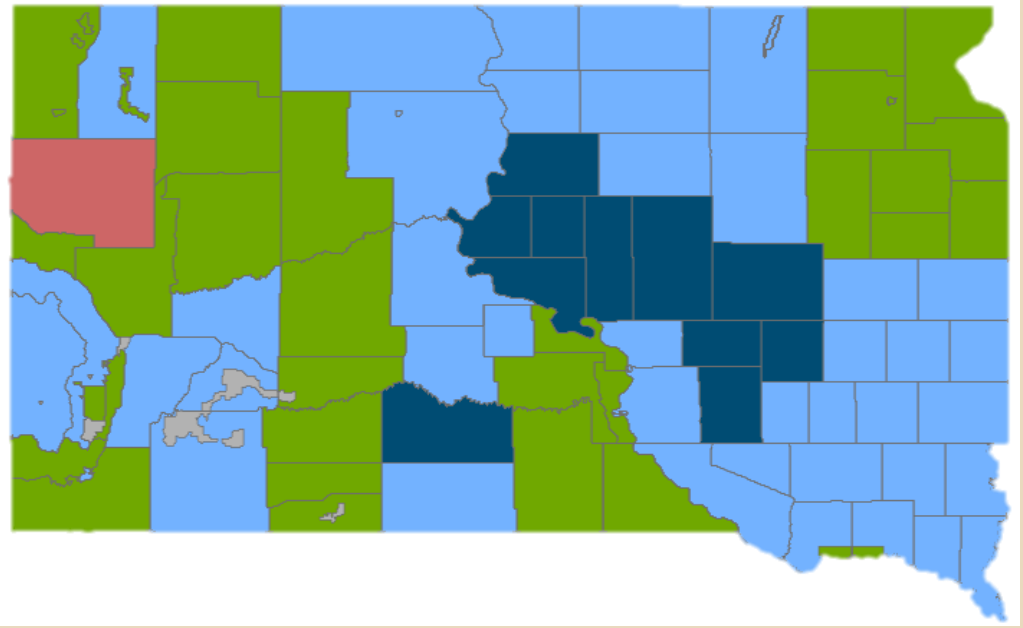


2021 – 2022

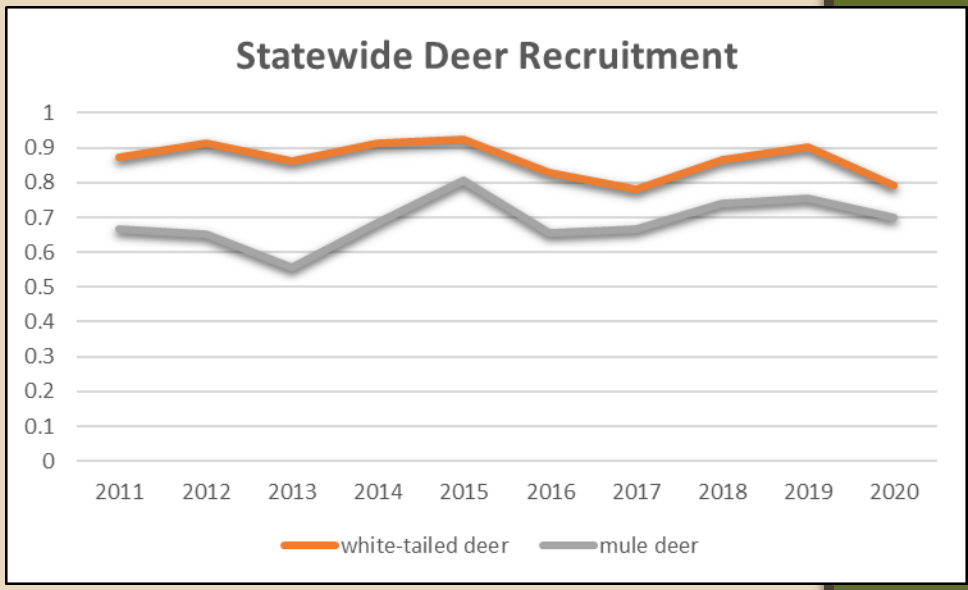
Herd Composition Surveys

2020

- Pre-season ground counts
- Classified **~17,100** deer
  - (WTD = 11,100; MD = 6,000)

AGE RATIOS

- Fall recruitment
- White-tailed deer = 79 fawns:100 does (95% CI:76-82)
- Mule Deer = 70 fawns:100 does (95% CI:66-74)

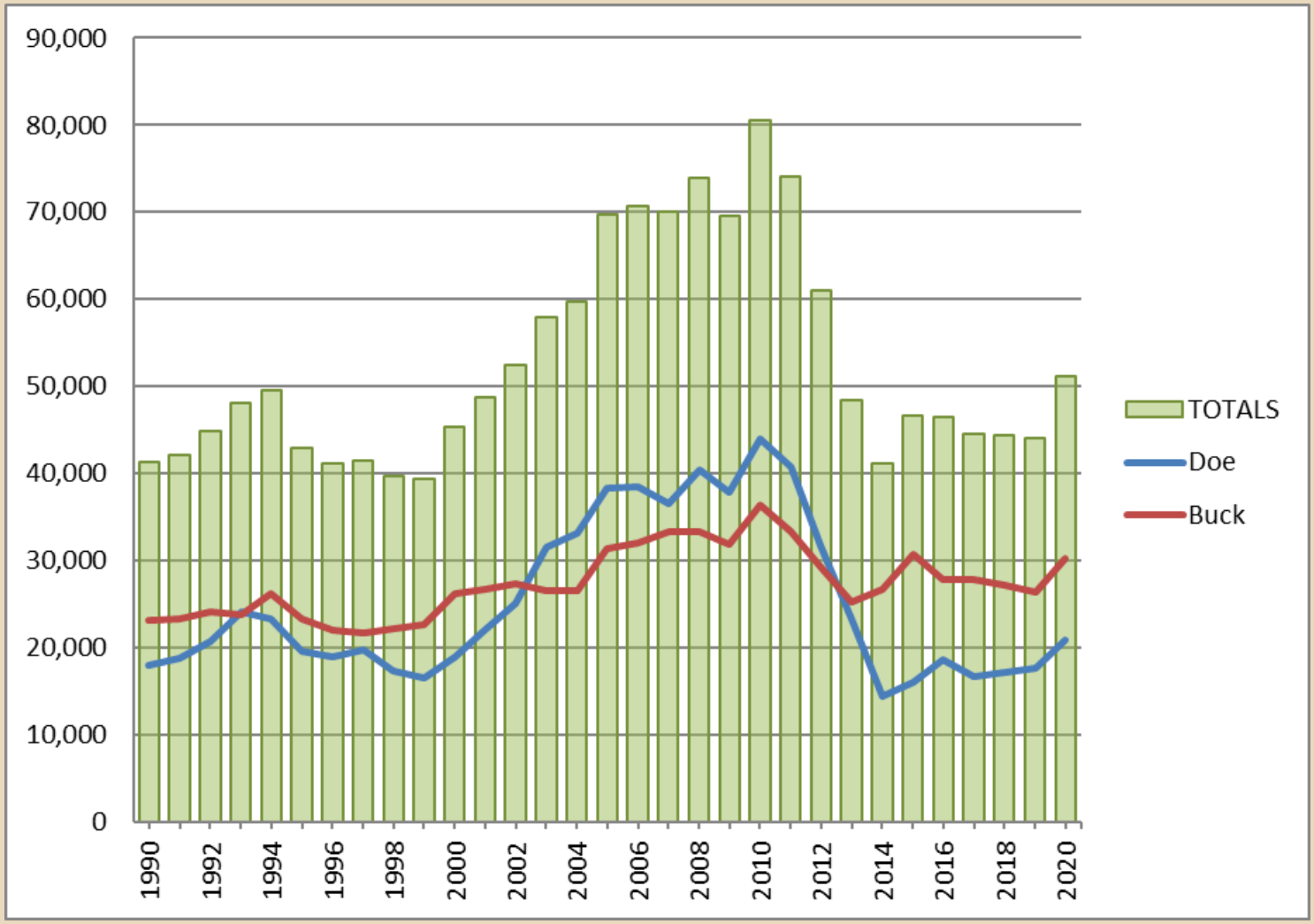


Statewide Deer Harvest 2020

- Total Deer Harvest
  - 2019 ~ 50,700
  - 2020 ~ 59,000

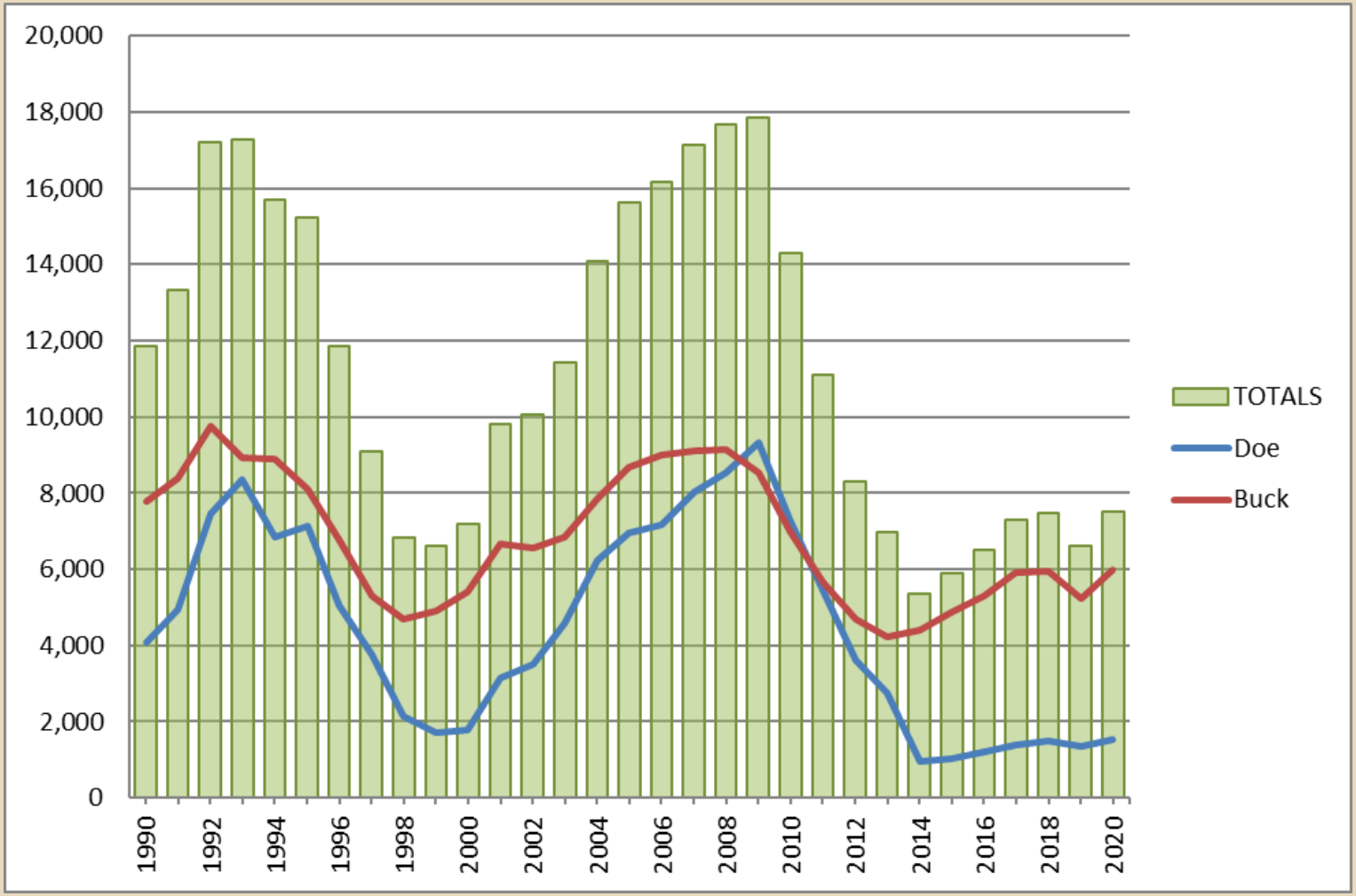
	White-tailed Deer	Mule Deer	Total
Firearm	36,183	4,976	41,159
Archery	9,061	1,384	10,445
Youth/appr	5,239	890	6,129
Muzzleloader	1,154	186	1,341
TOTAL	51,637	7,436	59,074

White-tailed Deer Harvest



2020 Total WT Harvest = 51,600 (30,500 bucks; 21,100 does)

Mule Deer Harvest



2020 Total Harvest = 7,400 (5,900 bucks; 1,500 does)

Deer Abundance Surveys

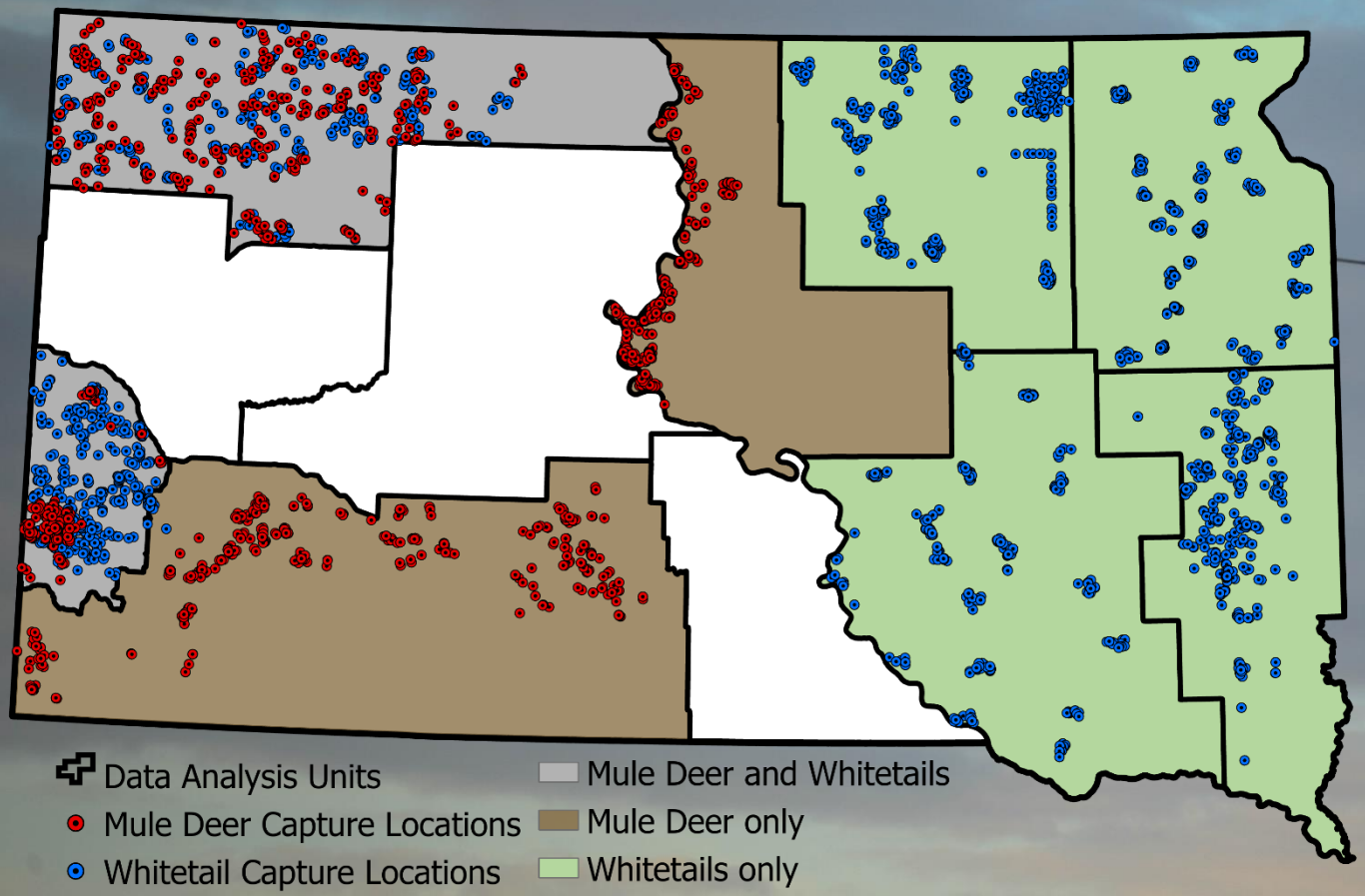
(White-tailed Deer)

- Aerial Sightability Surveys
  - Upper James River
  - Prairie Coteau

- Road Transect Distance Sampling
  - Black Hills
    - Important for evaluating abundance population objective
    - 2020 ~ 45,000 white-tailed deer

Deer Research Updates

Deer Survival Studies



Deer Survival Studies

Objectives:

1. Estimate deer trend
2. Estimate deer abundance

How? By estimating survival and mortality

- 2 species - mule deer and white-tailed deer
- 2 ages - juveniles (6-18 month) and adults
- 2 sexes
- Evaluate spatial variation
  - 11 study areas
- Evaluate temporal variation
  - e.g., impacts of severe winter and disease

---- Preliminary ----

	Mule Deer		White-tailed Deer	
	Average	Range	Average	Range
Adult Doe	85%	77-93	83%	67-95
Juvenile	66%	37-96	72%	46-89

Deer Research cont.

Resource selection and population performance of mule deer and white-tailed deer in heterogeneous landscapes.

PhD candidate, Anna Moeller; Professor Paul Lukacs University of Montana

Estimating deer and elk abundance in complex topography.

Paul Lukacs, PI; University of Montana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DAU2-149
RECONYX


2020-07-19 18:29:58 M 2/3 69°F
DAU2-149
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2020-07-19 18:29:53 M 3/3 68°F
DAU2-149
RECONYX


2020-07-09 07:40:57 M 2/3 59°F
DAU3-157
RECONYX


2019-07-23 07:48:47 M 2/3 59°F
BH002
RECONYX


2019-08-23 07:25:09 M 2/3 55°F
BH035
RECONYX


2019-06-11 11:26:21 M 2/3 57°F
BH069
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2019-06-22 07:48:30 M 2/3 46°F
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2019-06-22 08:18:57 M 1/3 48°F
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SOUTH DAKOTA
Game, Fish & Parks
Wildlife Biology
The University of Montana
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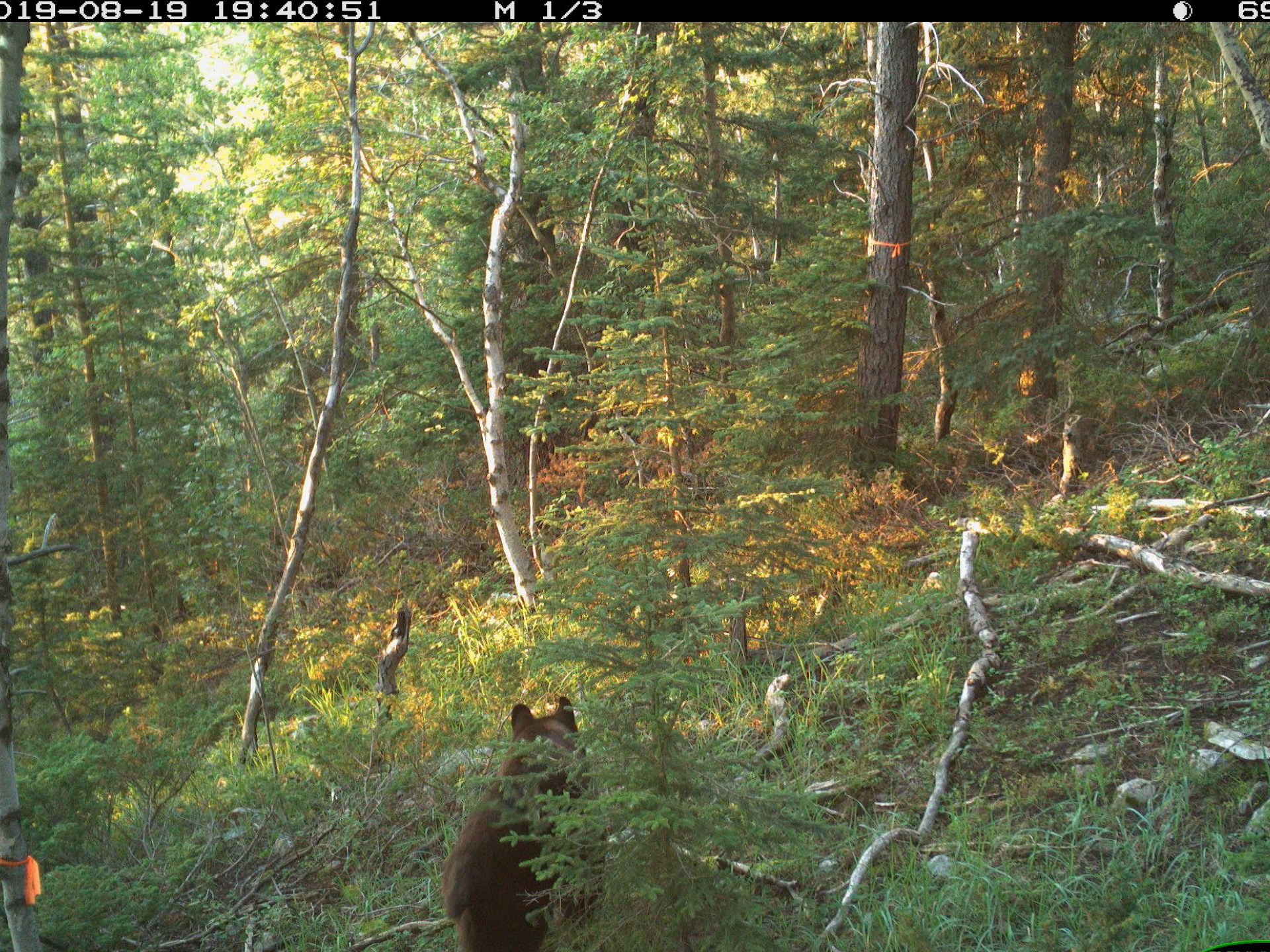
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- STOP….

- QUESTIONS?

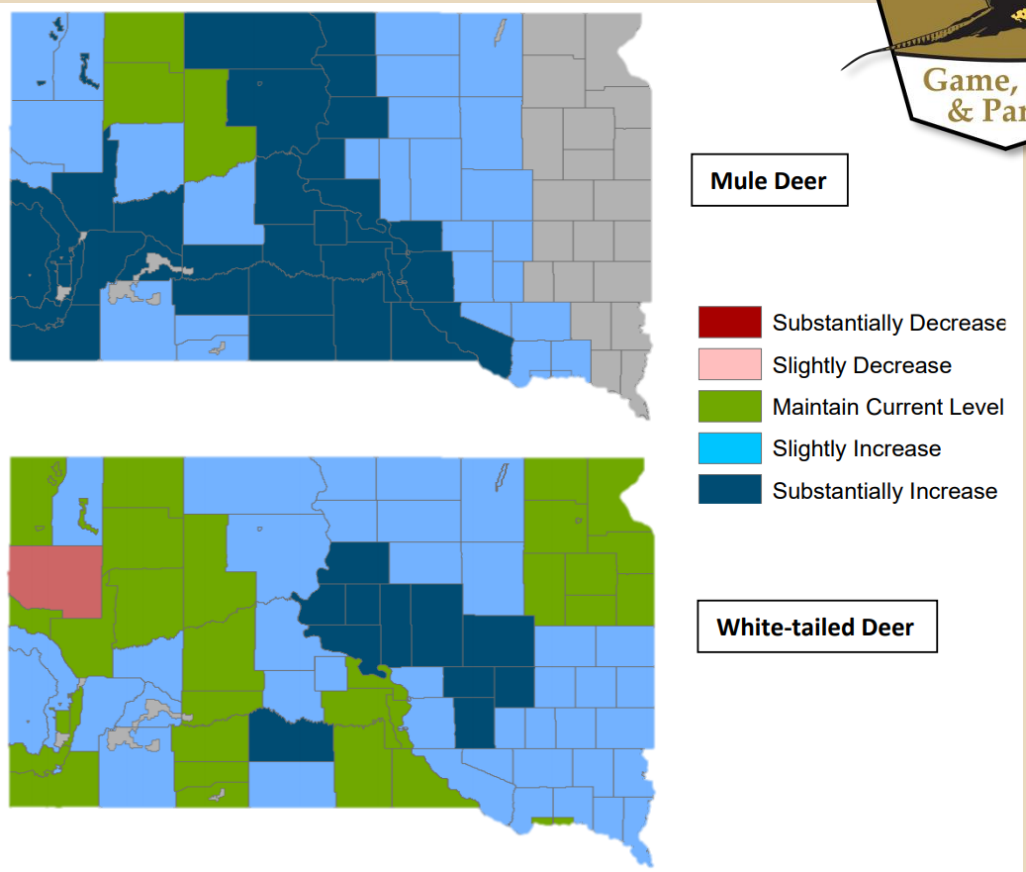
Population Modeling

Population Objectives

Biological Data

- Herd composition
- Harvest
- Abundance surveys
- Survival
- Research

Population Modeling

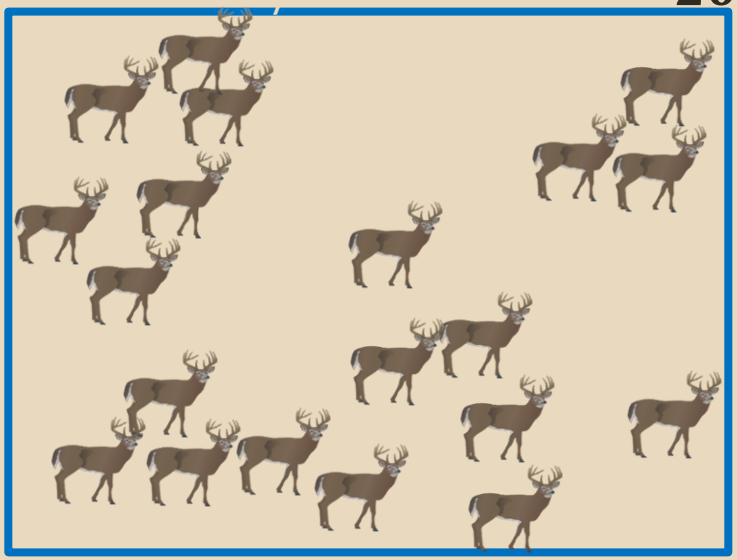


- Estimating population, projecting harvest and trends
- Evaluation of deer season proposals
- Mule deer population projections

Reconstructing Pre-hunt Population

Adult Bucks

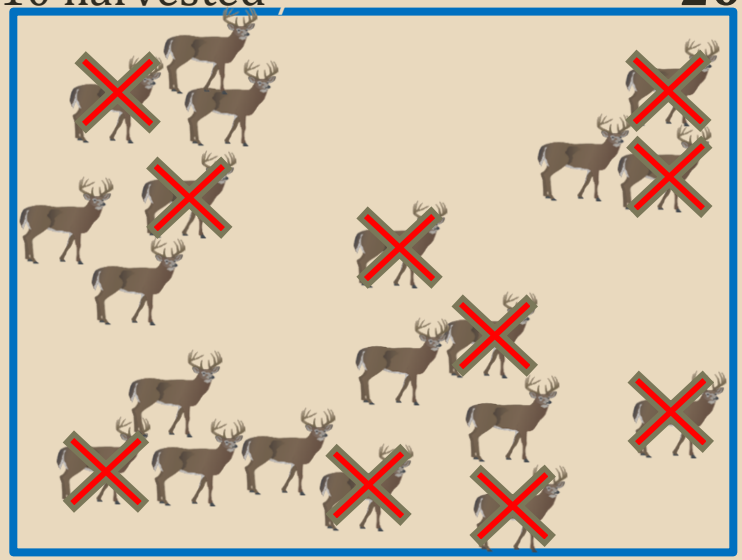
20



Reconstructing Pre-hunt Population

Adult Bucks

10 harvested **20**



Reconstructing Pre-hunt Population

Adult Bucks

10 harvested / 0.5 harvest rate = **20**

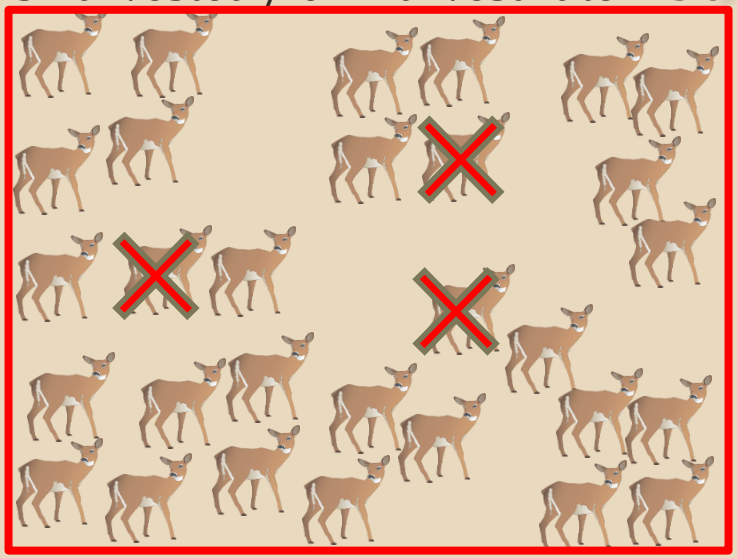
Reconstructing Pre-hunt Population

Adult Bucks

10 harvested / 0.5 harvest rate = **20**

Adult Does

3 harvested / 0.1 harvest rate = **30**



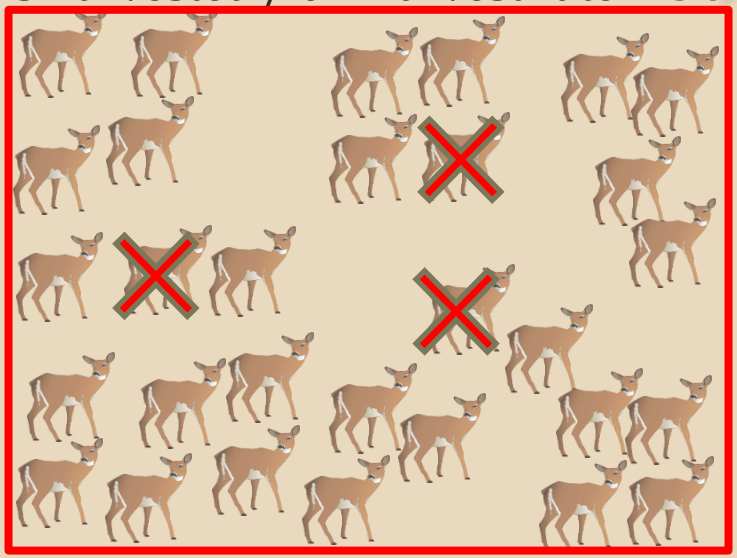
Reconstructing Pre-hunt Population

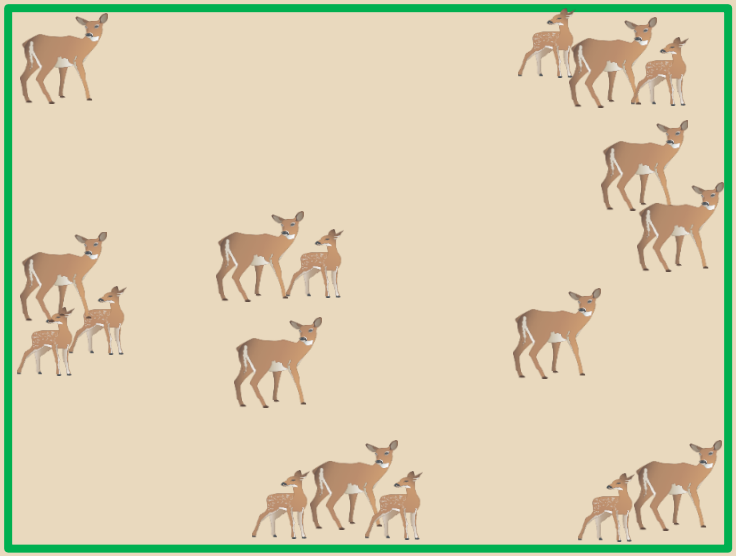
Adult Bucks

10 harvested / 0.5 harvest rate = **20**

Adult Does

3 harvested / 0.1 harvest rate = **30**



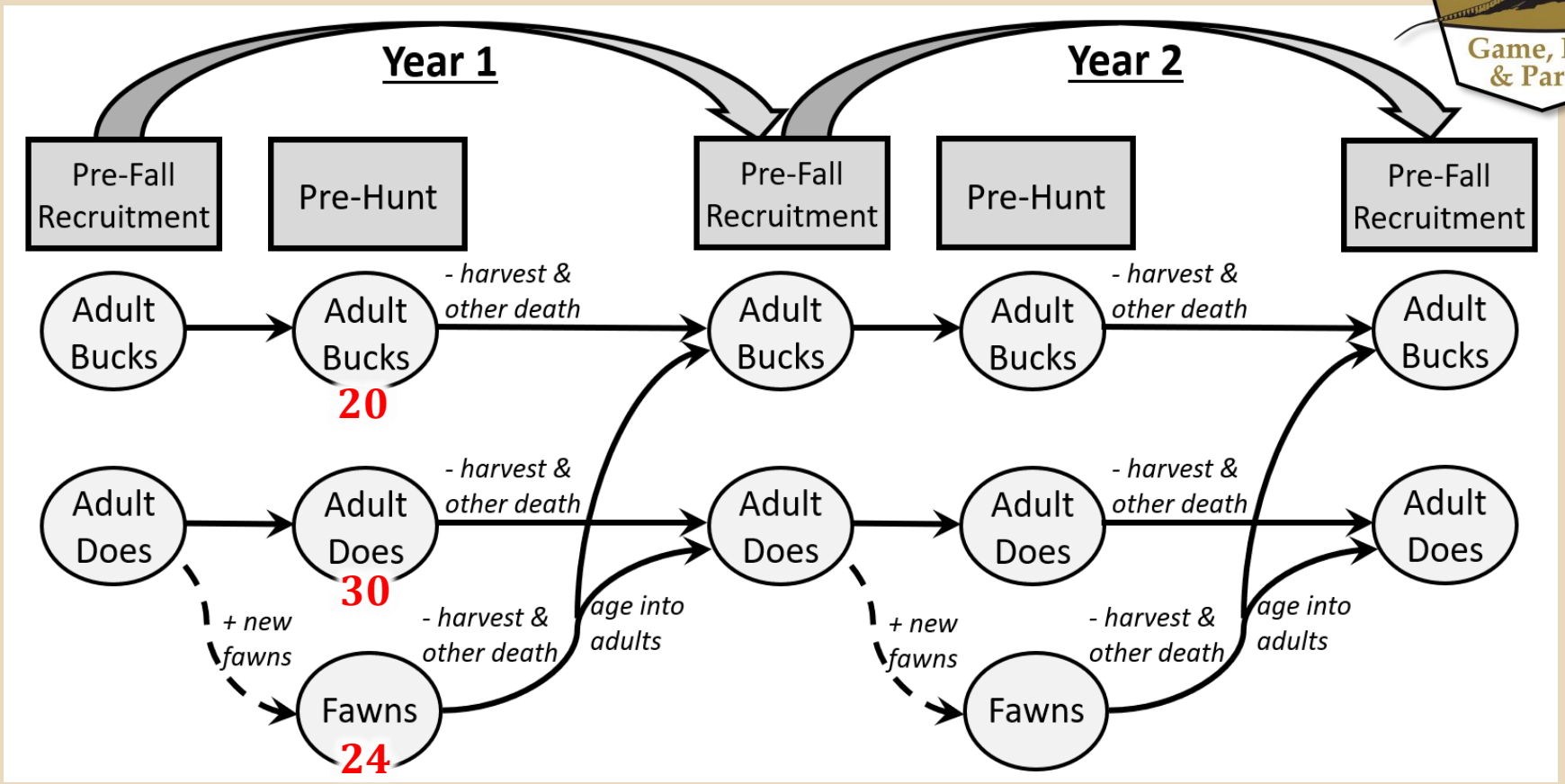


Doe Fawn and Button Bucks

30 Adult Does x Fawn:Doe Ratio

30 Adult Does x 8:10 = **24**

Projecting Harvest and Trends



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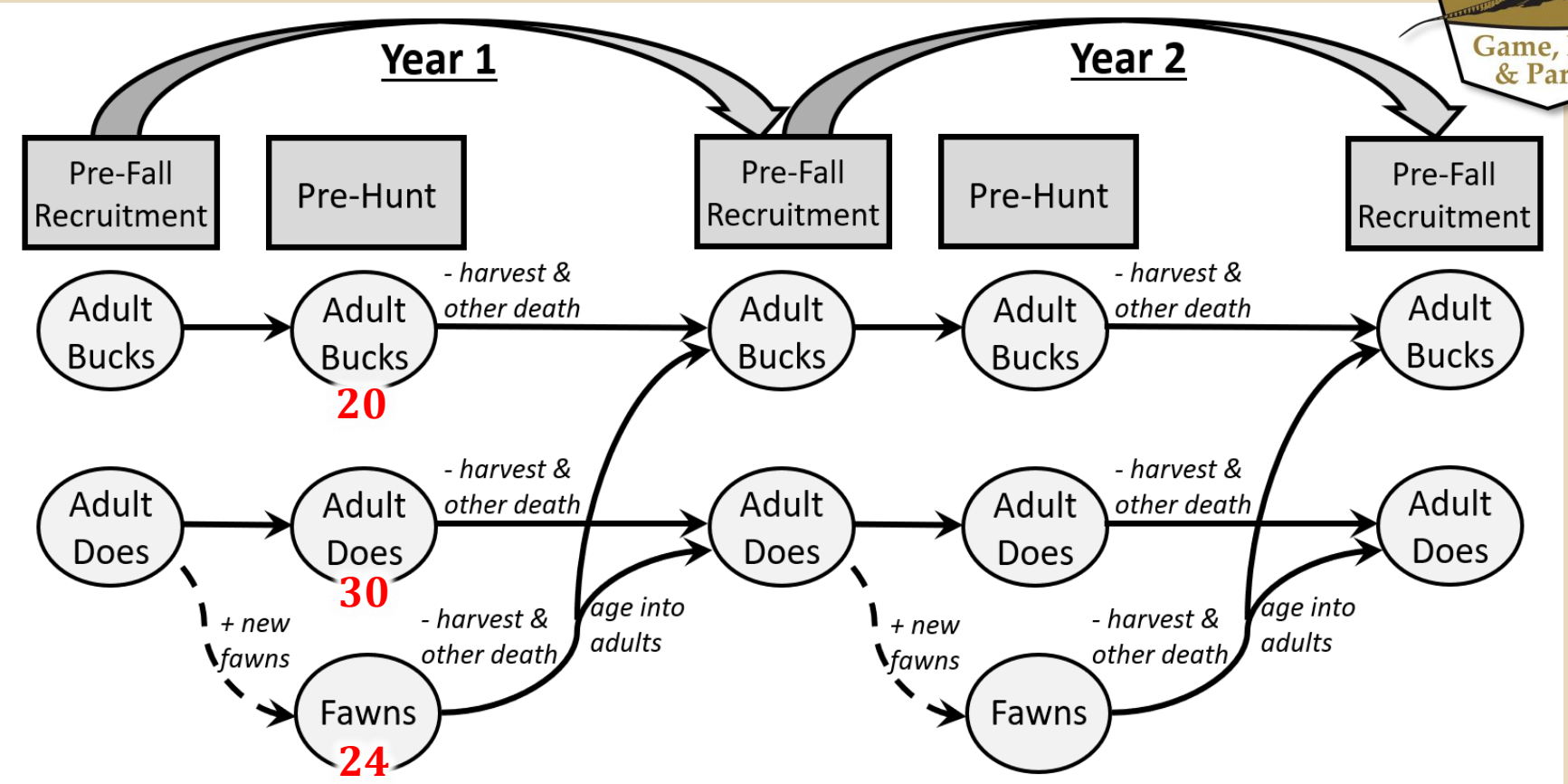


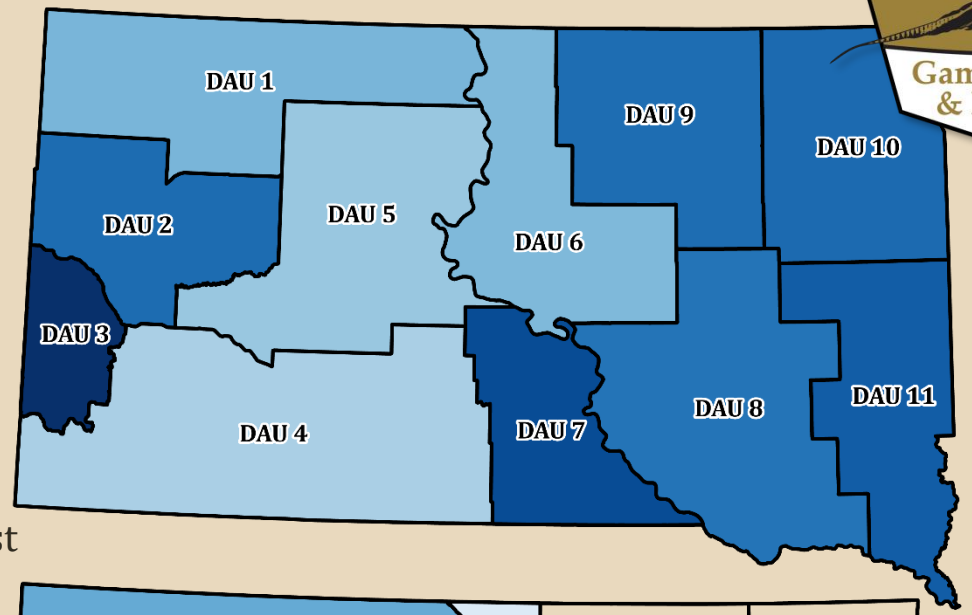
Projecting harvest

- Average success from previous years multiplied by proposed licenses
- Example: 2020 firearm harvest
  - Muley adult buck license type 01: predicted 3,137, estimated 3,296

Population Estimates and Projected Changes

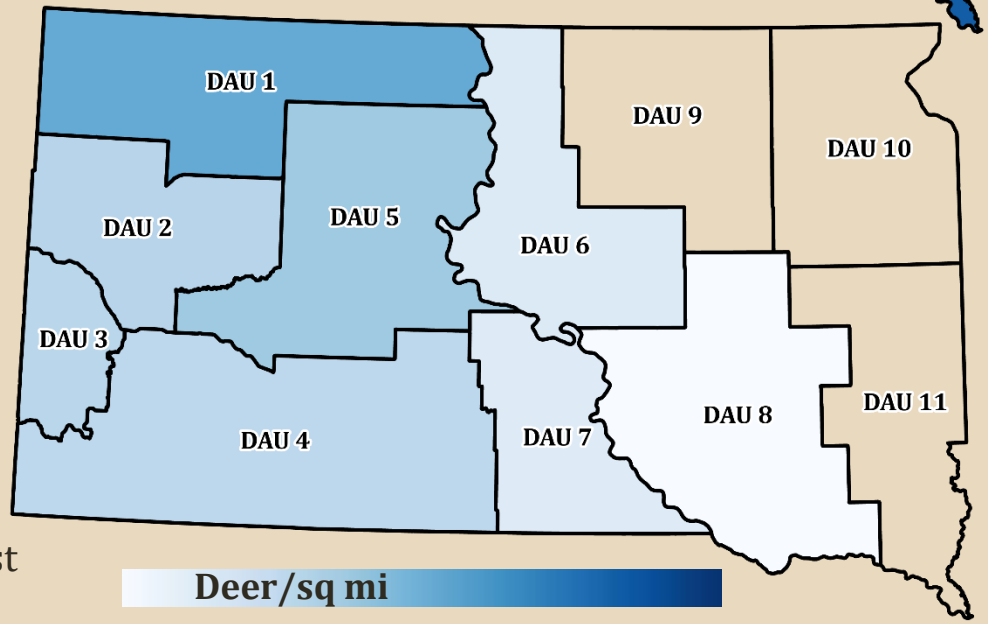
White-tailed Deer

- 2020 Pre-hunt 3.8/sq mi (~400,000)
- 9% expected 2-year growth
  - ~1,600 increased doe harvest
    - ~21,000 total doe harvest
  - ~409 increased buck harvest
    - ~29,000 total buck harvest



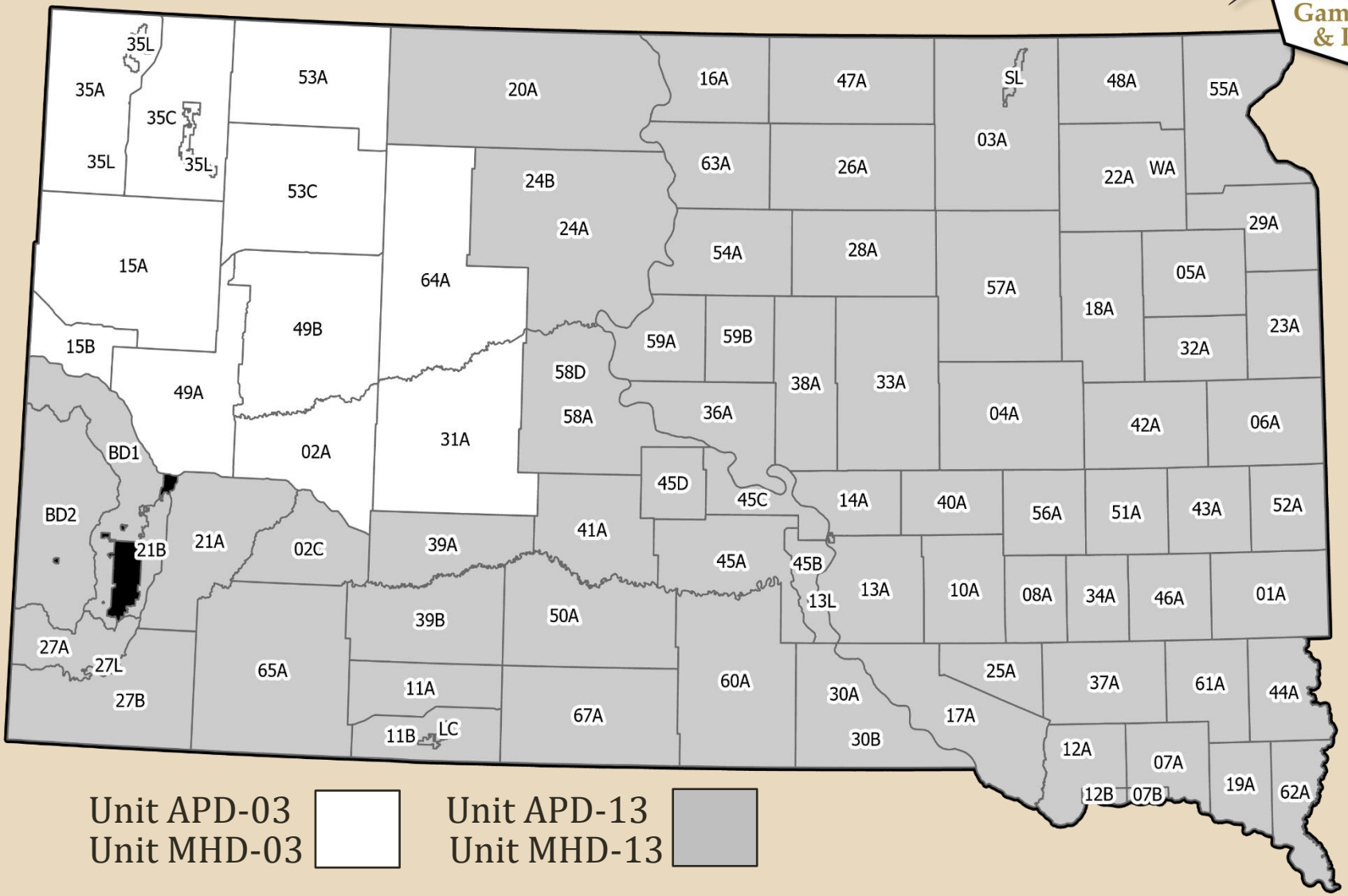
Mule Deer

- 2020 Pre-hunt 1.0/sq mi (~80,000)
- 9% expected 2-year growth
  - ~400 decreased doe harvest
    - ~1,000 total doe harvest
  - ~120 increased buck harvest
    - ~5,700 total buck harvest



Apprentice and Mentored Deer Seasons

2017-2020 average mule deer doe harvest in gray shaded units was 454



Unit APD-03
Unit MHD-03

Unit APD-13
Unit MHD-13

Mule Deer Doe Harvest by Season

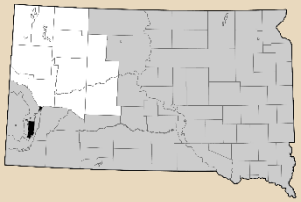
- **2017-2020 Average**

Season	Females	Females in APD/MHD-13*	Tag Type
Mentor/App	792 (52%)	454 (54%)	03
Landowner	286 (19%)	192 (23%)	01, 03
Firearm	283 (19%)	98 (12%)	01, 03
Archery	144 (9%)	79 (9%)	01
Muzzleloader	13 (1%)	10 (1%)	01
Special Buck	6 (<1%)	4 (<1%)	01
Refuge	0 (0%)	0 (0%)	01
Total	**1,524**	**837**	

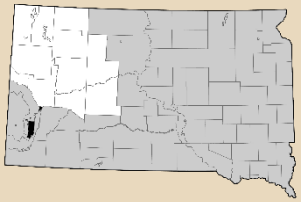
- *Type 01 = Any Deer*
- *Type 03 = Any Antlerless Deer*

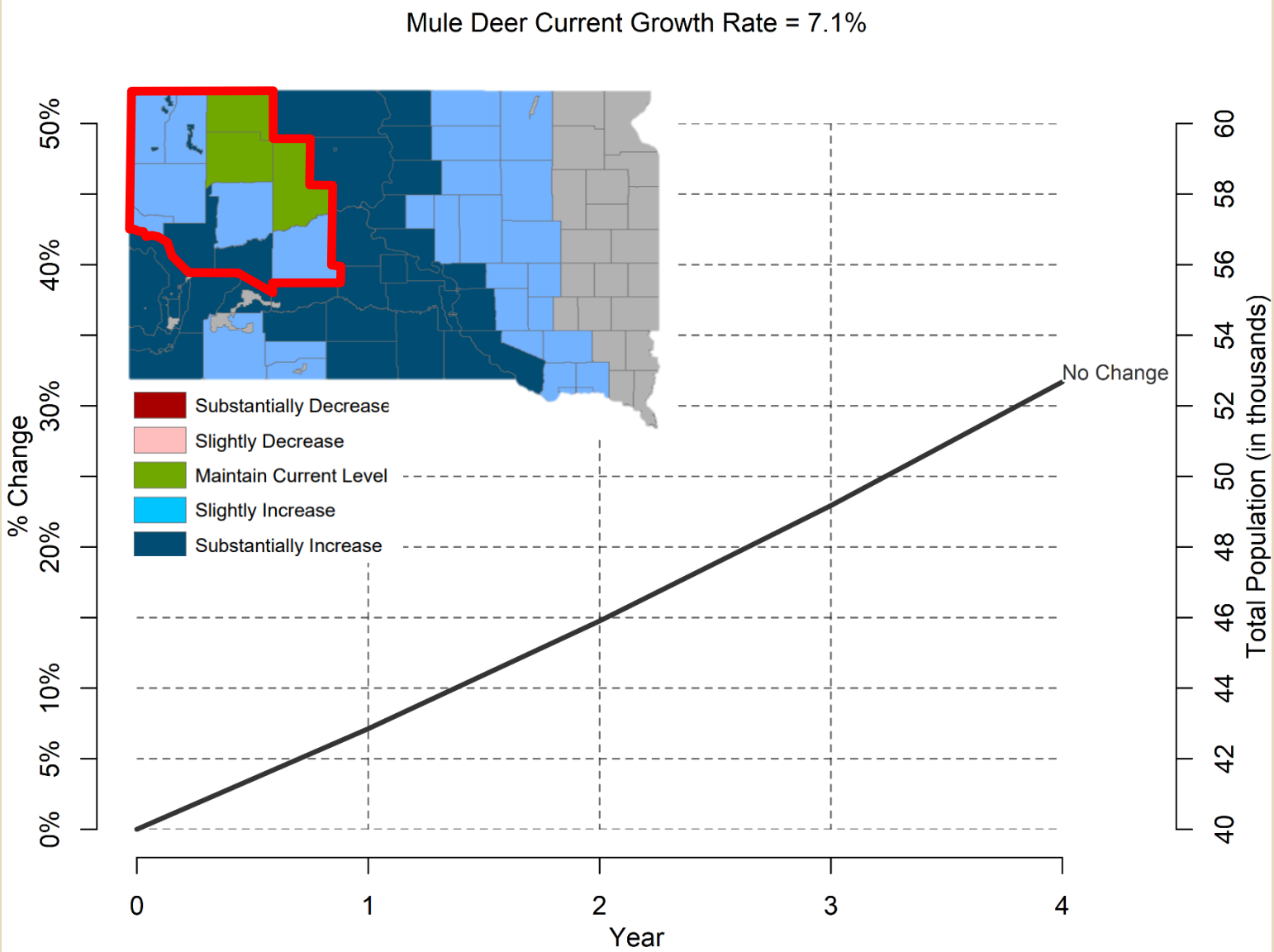
*2017-2020 Average if units 02A, 15A, 15B, 31A, 35A, 35C, 35L, 49A, 49B, 53A, 53C, 64A are excluded

Mule Deer Population Growth "03" NW Unit



Mule Deer Population Growth
"03" NW Unit





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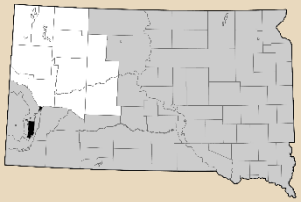

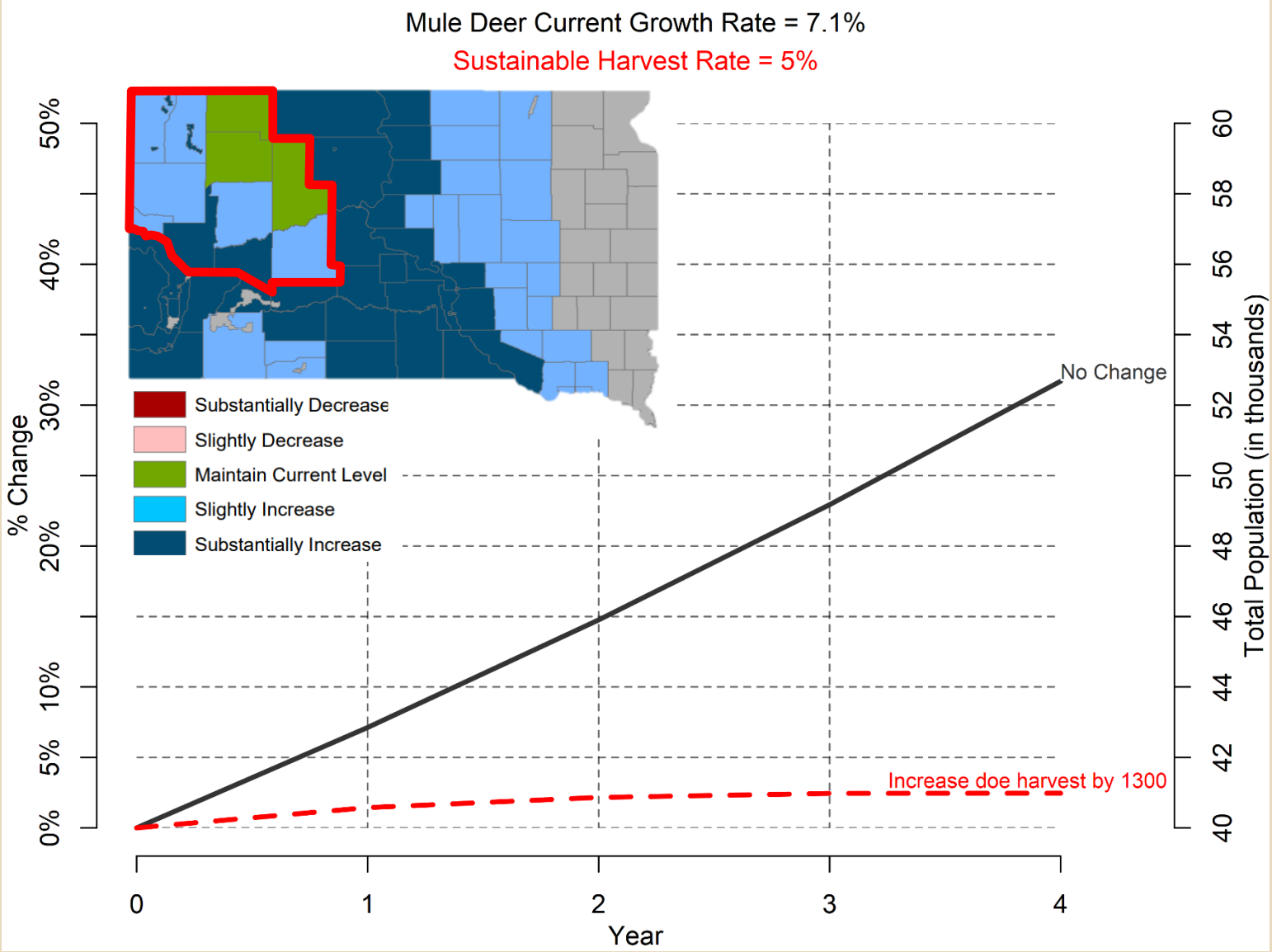

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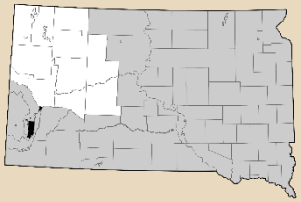
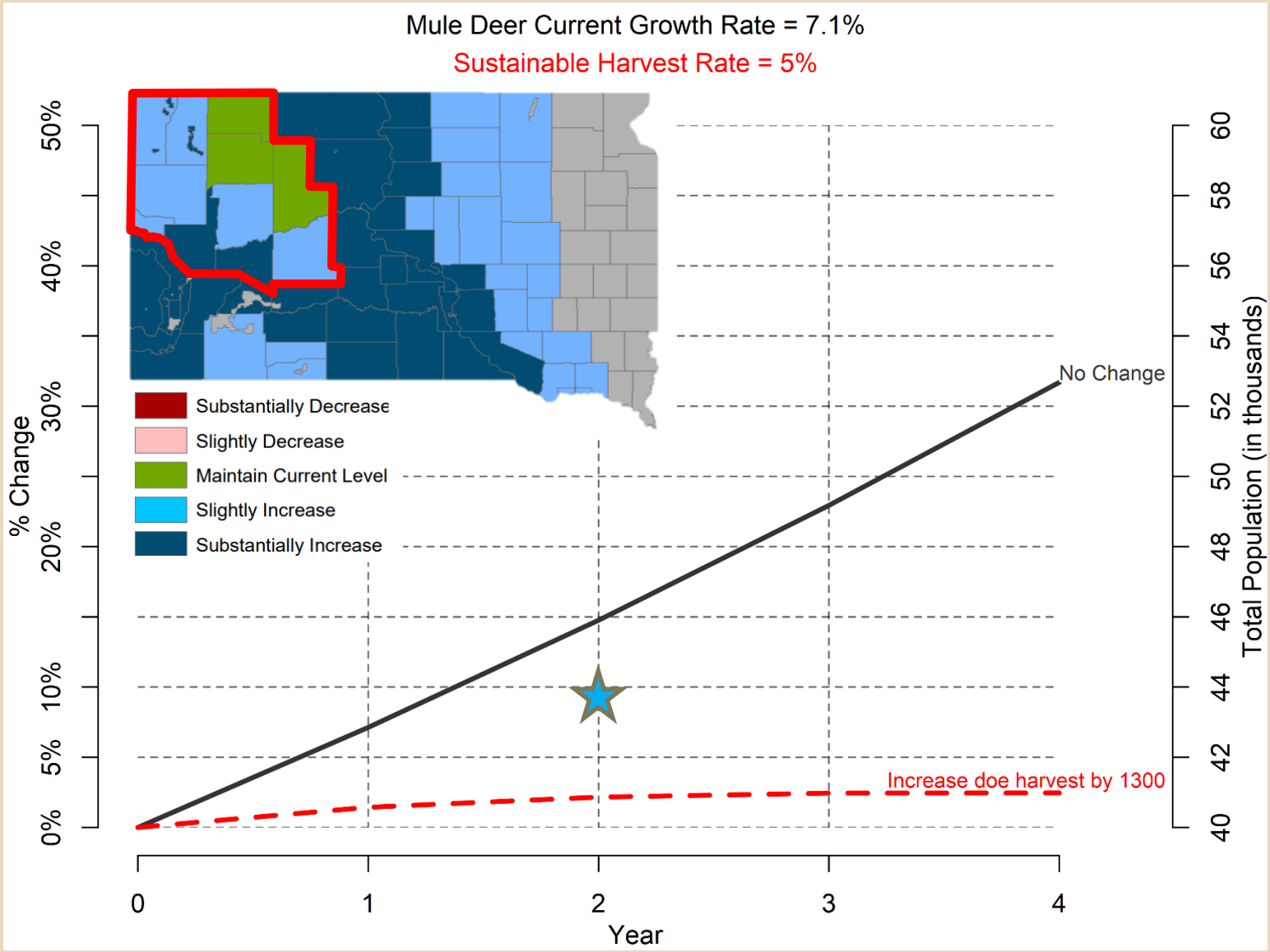
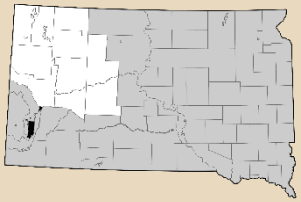
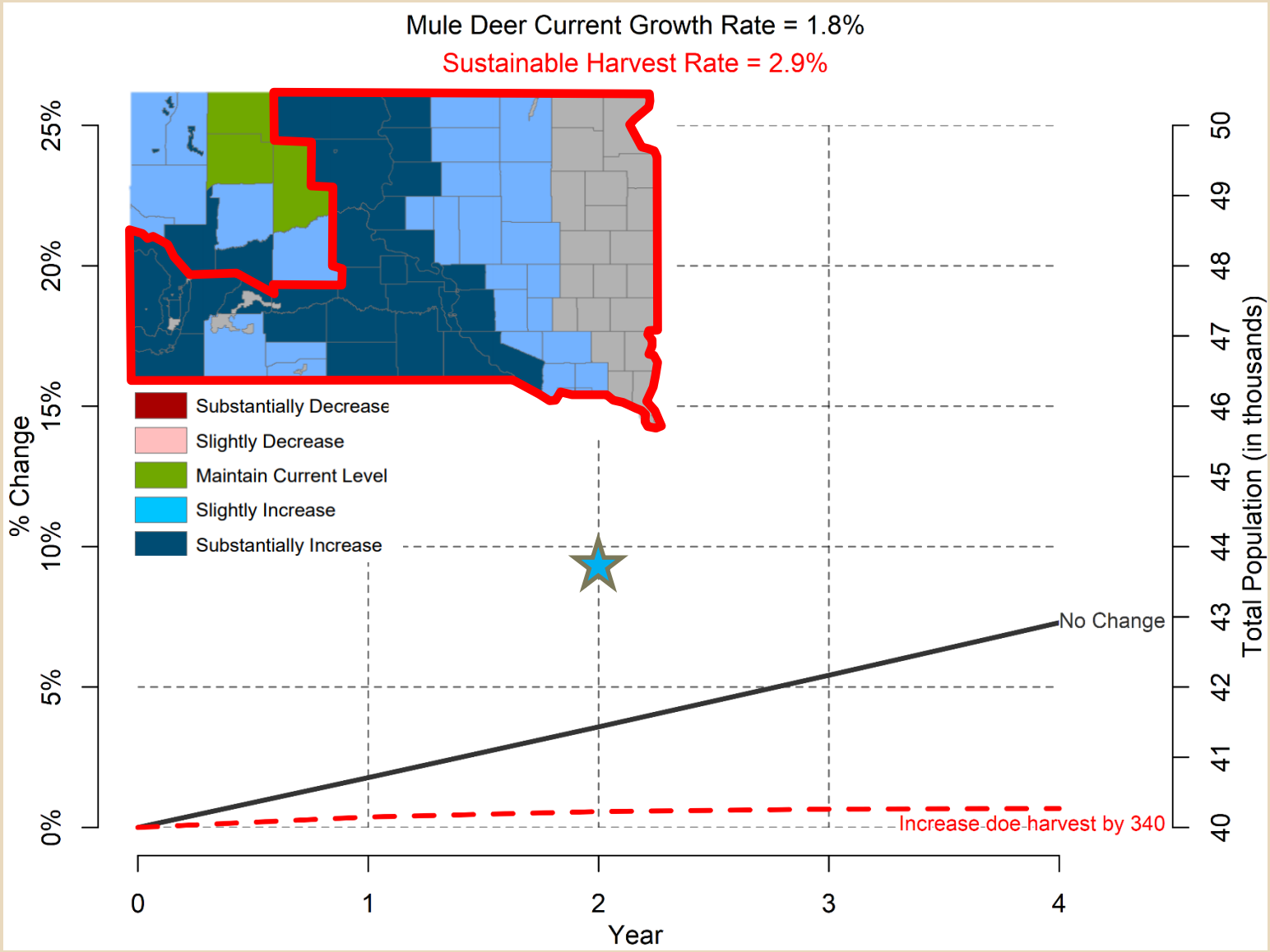




Mule Deer Population Growth
"13" Rest of State Unit





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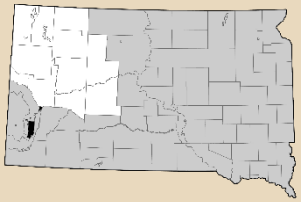

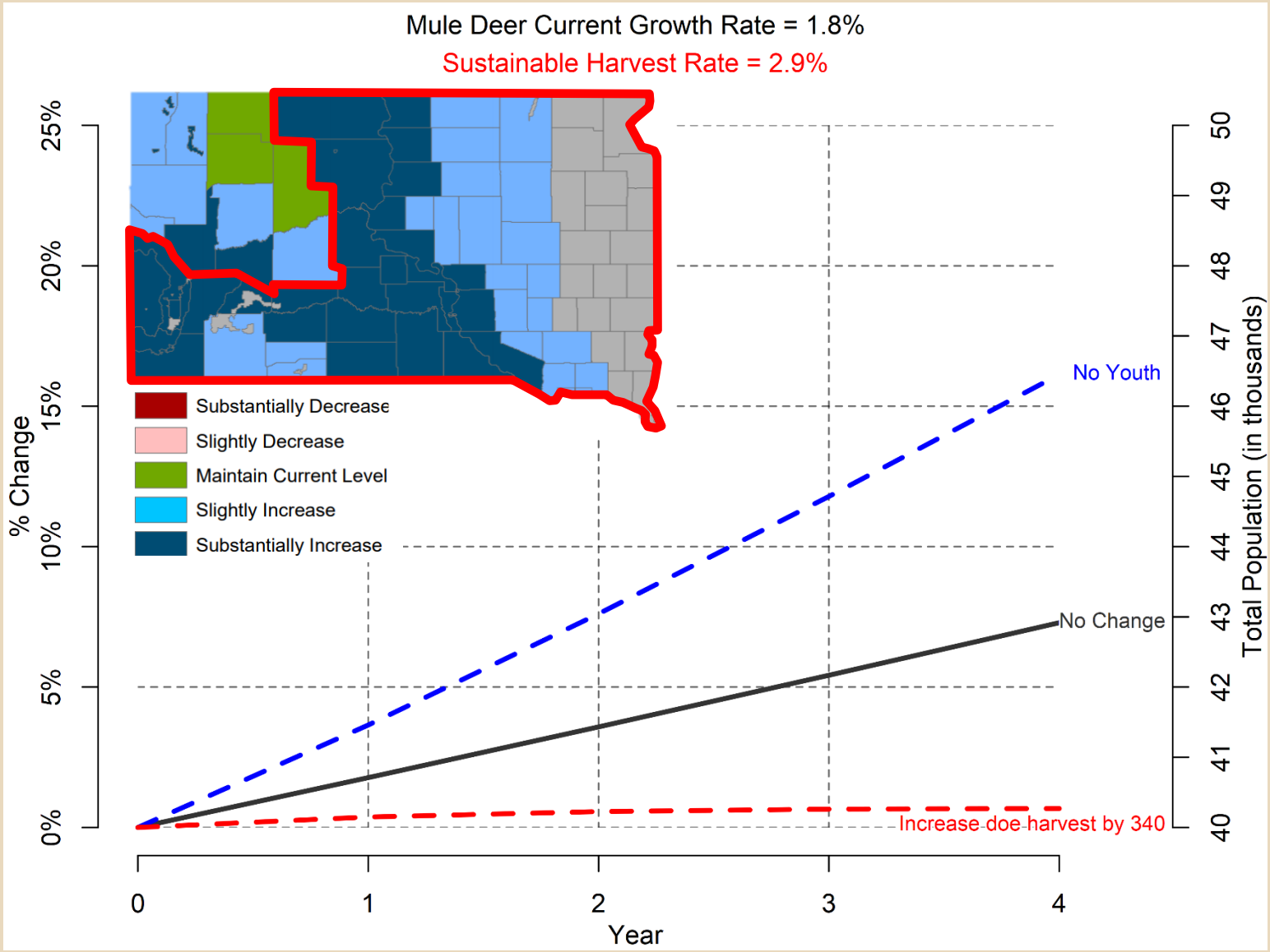

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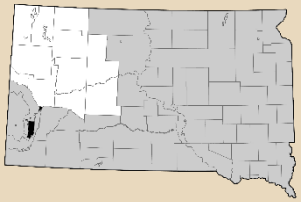

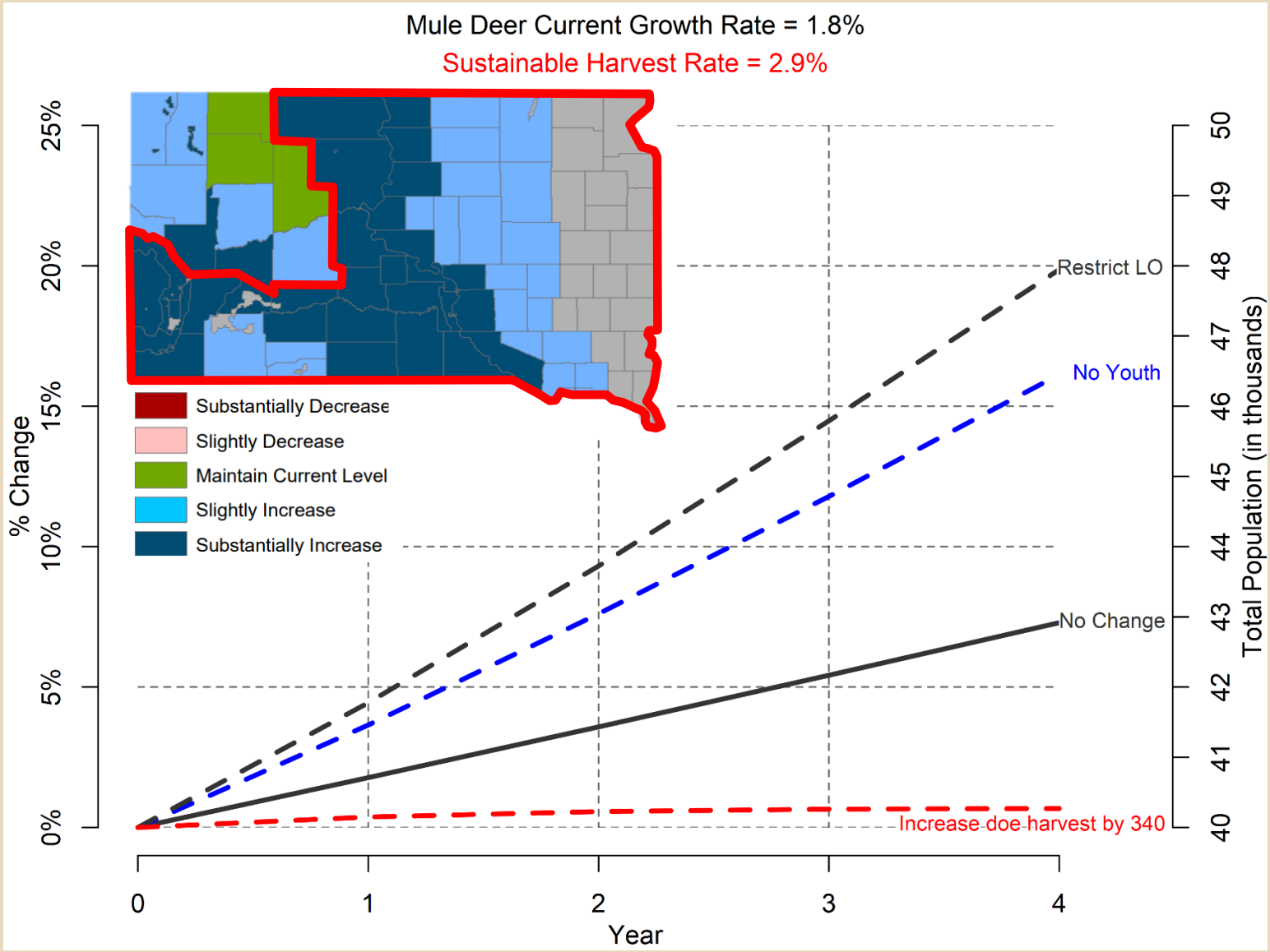

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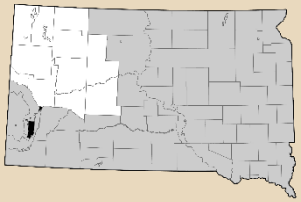

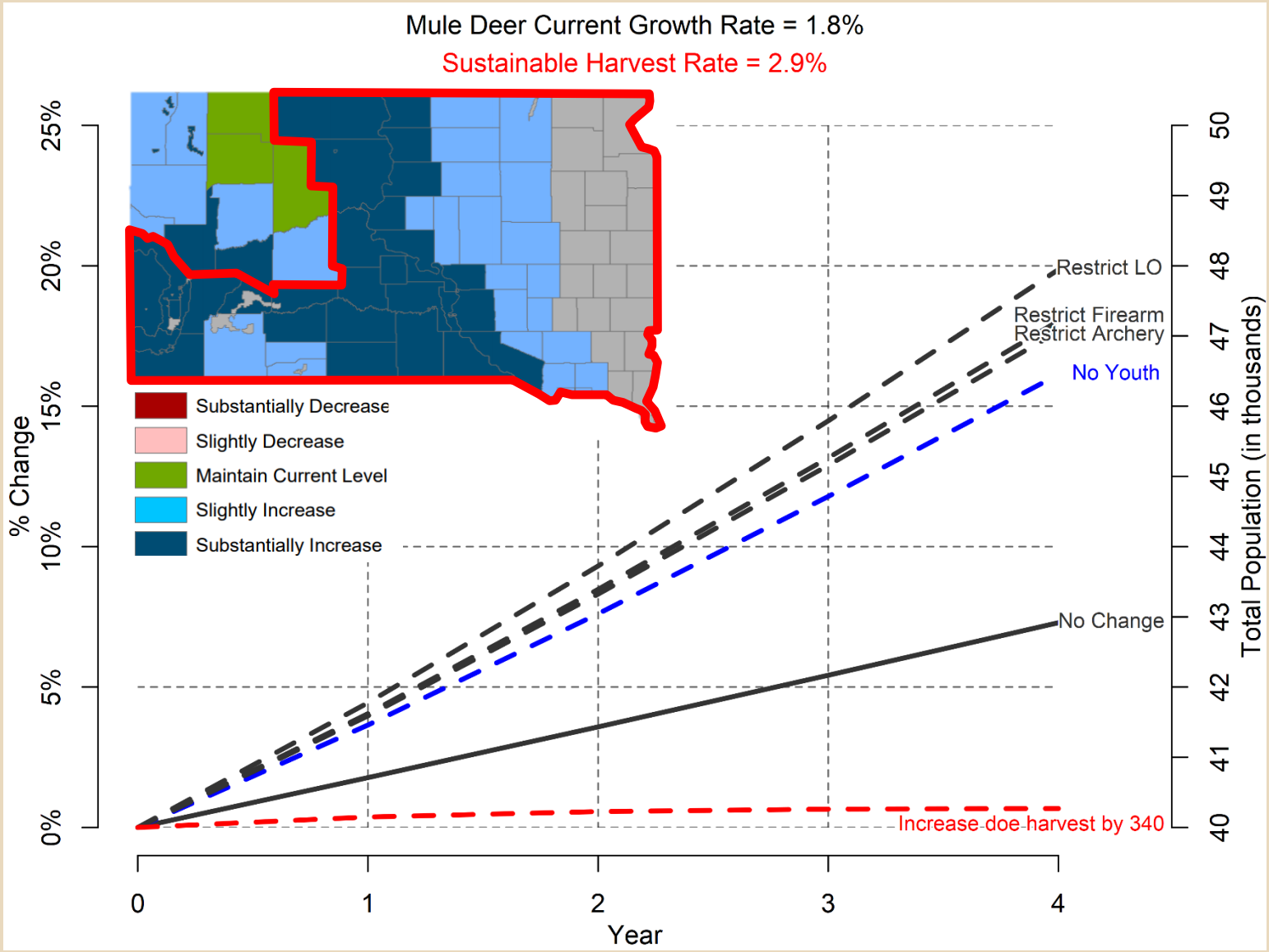


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